Structure of a Gamma Delta T Cell Receptor

T. Allison, C. Winter, and D. Garboczi, (National Institute of Allergy and Infectious Diseases, National Institutes of Health)

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Of the three classes of immune system molecules that are products of recombining gene segments--antibodies, α/β T cell receptors, and gamma/delta T cell receptors--the gamma/delta class is the least well known. They appear to recognize antigens directly, without the requirement for antigen processing and presentation as in α/β T cell recognition. The γ/δ T cell clone G115 responds to small phosphate-containing antigenic molecules. T cells like G115 are prevalent in the human peripheral immune system. We have determined the structure of the G115 T cell receptor using synchrotron radiation and multiple wavelength anomalous diffraction. The crystals are in the spacegroup $P2_1$ with cell dimensions of a=72.82, b=151.94, c=97.21, β=100.065°. Data were measured at three wavelengths around the selenium edge and yielded excellent experimental electron density maps. Refinement of the model is in progress.